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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/594,933

Applicant(s)

HATTORI ET AL.

Examiner

TAHSEEN KHAN

Art Unit

1794

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-11 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-11 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 29 October 2007 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SF/ICE)
- 4) ☐ Interview Summary (PTO-413)
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: ____
- Paper No(s)/Mail Date 12/19/06, 09/28/2006

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

3. Claims 1, 4-5, 7-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over *Shigematsu* JP 2003-075605 A, as evidenced by De Boer USPN 5,470,606 in view of *Neuman* USPN 5,948,131, *Meredith* USPN 5,990,984, or *Klocek* USPN 6,160,661.

4. Regarding claim 1, *Shigematsu* discloses a film laminate (Drawing 1 and paragraph 0023, lines 1-5) comprising a transparent base material film (Drawing 1, element 1) adjacent to a medium refractive index layer (Drawing 1, element 11), which is adjacent to a high refractive index layer (Drawing 1, element 12). *Shigematsu's* transparent base film corresponds to applicants' claimed light transparent base film due to its transparency and its material being made of cellulose polymers, polyester polymers, polyethylene terephthalate, diacetyl cellulose, polycarbonate, triacetyl

cellulose, polyether sulphone, or polyether ether ketone (paragraph 0024), both of which are qualities that applicants use to define their claimed light-transparent base material. Furthermore, *Shigematsu* defines the high refractive index layer (Drawing 1, element 12) as made of a cured resin from polyester, acrylic, epoxy, or urethane (paragraph 0026, lines 3-8) and as such corresponds to applicants' claimed hardcoat layer due to it sharing the same composition applicants' claimed 'hardcoat layer'. Also, *Shigematsu* further discloses that its medium refractive index layer (Drawing 1, element 11) has a similar composition as that of their high refractive index layer (Drawing 1, element 12) but can contain inorganic system ingredients such as an alkoxysilane solution. Due to the fact that alkoxysilane solutions are frequently used in forming antistatic layers, as evidenced by *De Boer* USPN 5,470,606 (see Abstract and column 2, lines 31-38), *Shigematsu*'s medium refractive index layer (Drawing 1, element 11) corresponds to applicants' claimed antistatic layer. Thus, all the limitations of applicants' independent claim 1 are met with the exception that *Shigematsu* remains silent with regards to its interfaces being absent between the layers of its laminate.

5. Applicants primarily define their claim of the interface being "absent" in their specification by way of two definitions: 1.) When the refractive index of the "interface between the layers is changed gradationally" from the refractive index of one layer to the refractive index of the layer above it (page 4, paragraph 0014), and 2.) when "interference fringes are not visually observed" (page 5, paragraph 0015). Applicants further define their use of the interface being "absent" by disclosing that such a feature can be "realized" by forming a layer using a composition "penetrable into the" layer

below it (page 5, paragraphs 0016 and 0017). Applicants further elaborate on this by disclosing that the term “penetrating” refers to using a solvent in an above layer and to wet it over the layer below it such that the solvent will create penetrating properties, swelling properties, and wetting properties.

6. *Neuman* discloses a multilayer antireflective coating placed over a substrate; wherein the coating has a graded layer whose composition is varied throughout the thickness of the layer such that the refractive index of the graded layer varies from a low refractive index approximately matching the refractive index of the substrate at the interface of the graded layer and the substrate, to a higher refractive index at the surface of the graded layer opposite to the interface with the substrate (Abstract, lines 1-8). *Neuman* discloses that a graded layer provides a new surface having a higher refractive index, and therefore, a higher Brewster angle, antireflection performance may be optimized at higher installation angles (column 4, lines 59-67 and column 5, lines 1-2).

7. *Meredith* discloses a polymer substrate coated with a material in which the refractive index of the material substantially matches that of the polymer substrate so as to reduce interference ripple and to improve optical quality. More specifically, *Meredith* discloses that when a hardcoat layer is used over a substrate, then it should be formulated such that the hardcoat layer's refractive index should match the substrate's refractive index to prevent interference ripple (column 2, lines 42-53).

8. *Klocek* discloses an electro-optic system (Figure 2) comprising an antireflective coating (Figure 2, element 18), and a substrate layer (Figure 2, element 18) with a

protective layer adjacent to it (Figure 2, element 22). *Klocek* further discloses that region between the substrate and protective layer (i.e. Figure 2, element 24) is not a defined layer (i.e. "absent"), but rather a region where the concentration of the materials is gradually changed during the growth of the layer so that there is a "gradual change" from the materials used to form the substrate (Figure 2, element 18) to the materials used to form the protective layer (Figure 2, element 22) (column 3, lines 64-67 and column 4, lines 1-2). *Klocek* explicitly discloses that this "gradual change" in materials allows for improved optical characteristics (column 4, lines 2-5). Also, the examiner submits that said gradual change in the material composition in this region (Figure 2, element 24) will certainly be associated with a corresponding gradual change in refractive index as well, as has been described above by *Neuman* and *Meredith*.

9. It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the interfaces between the layers in a film laminate, of *Shigematsu*, such that the refractive indexes of the interfaces are gradually changed, of *Neuman*, *Meredith*, and *Klocek*. One of ordinary skill in the art would have been motivated in trying to gradually change the refractive index within its interfaces so as to improve optical characteristics, specifically with regards to antireflective properties as has been mentioned in all three prior art references cited above. As such, the combination of *Shigematsu* in view of *Neuman*, *Meredith*, and *Klocek* meets all the claim limitations of applicants in fully satisfying the interface being claimed "absent".

10. Regarding claim 7, *Shigematsu* in view of *Neuman*, *Meredith*, or *Klocek* suggest a low refractive index layer to be adjacent to the high refractive index layer (identified as

applicants' claimed 'hardcoat layer' above) as explicitly stated by *Shigematsu* (paragraph 0023 and Drawing 1, element 13).

11. Regarding claim 8, *Shigematsu* in view of *Neuman*, *Meredith*, or *Klocek* suggest using its laminate as an antireflective laminate as explicitly stated by *Shigematsu* (abstract), *Neuman* (abstract), *Meredith* (column 1, lines 33-48), and *Klocek* (abstract and Figure 2).

12. Regarding claim 9, *Shigematsu* in view of *Neuman*, *Meredith*, or *Klocek* suggest a polarizer element pasted up on *Shigematsu*'s transparence base material film (Drawing 2) of its thin film laminate. *Shigematsu* further discloses that the polarizer can be polyvinyl alcohol films, partial formalized polyvinyl alcohol films, ethylene-vinylacetate copolymer system partial saponified films that are carried out by uniaxial stretching and by iodine dyeing (paragraph 0034, lines 1-7, paragraph 0037, and Drawing 2). Thus, *Shigematsu* in view of *Neuman*, *Meredith*, or *Klocek* meets the limitations of forming claimed polarizing element on claimed antireflective.

13. Regarding claim 10, *Shigematsu* in view of *Neuman*, *Meredith*, or *Klocek* suggest that *Shigematsu*'s polarizer element as described above can be used for various uses such as in liquid crystal displays (paragraph 0064, lines 1-2), i.e. image display devices. *Shigematsu* further discloses that such an assembly can be formed by putting together the suitable component parts of a liquid crystal cell, an optical element, lighting system (i.e. light source device), and incorporating a drive circuit (paragraph 0064, lines 3-7). Moreover, *Shigematsu* elaborates further that the display device can have the optical element on one side or the both sides of a liquid crystal cell and a thing which uses the

back light or the reflecting plate for the lighting system (i.e. light source device) can be formed. Furthermore, when forming a liquid crystal display, proper components such as an antiglare layer, **antireflection film**, plate, back light, can be arranged in its proper locations (paragraph 0065). Thus, *Shigematsu* in view of *Neuman*, *Meredith*, or *Klocek* meets applicants' limitations in forming claimed light source device with claimed transmissive display from its backside connected to claimed antireflective laminate.

14. Regarding claim 11, *Shigematsu* in view of *Neuman*, *Meredith*, or *Klocek* suggest laminating the optical sheet of *Shigematsu* (Drawing 1 and 2) to said optical element (i.e. polarizing element) (paragraph 0057); wherein the sheet is prepared at least in one side of optical elements (i.e. polarizing elements), such as a polarizing plate mentioned above and an optical film by which at least one-layer laminating is carried out on the polarizing plate and pasted to other members such as an liquid crystal cell (i.e. image display device) (paragraph 0058). Thus, *Shigematsu* in view of *Neuman*, *Meredith*, and *Klocek* meet the limitations of applicants in forming claimed light source device behind claimed transmissive display connected to claimed polarizing plate and claimed antireflective laminate.

15. Claims 2-3, and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over *Shigematsu* JP 2003-075605 A as evidenced by De Boer USPN 5,470,606 in view of *Neuman* USPN 5,948,131, *Meredith* USPN 5,990,984, or *Klocek* USPN 6,160,661, as applied to claim 1, and further in view of *Matsufuji* USPA 2002/0018886 A1 or *Kobayashi* USPN 6,068,794.

16. Regarding claims 2 and 3, *Shigematsu* in view of *Neuman*, *Meredith*, or *Klocek* suggest a film laminate wherein its interfaces are rendered "absent" as has been defined above. However, none of the references explicitly disclose using a composition that is "penetrable" into the transparent base material or antistatic layer.

17. *Matsufuji* discloses an antireflective film (Figure 1(d)) comprising a transparent support (Figure 1(d), element 1) whereupon is a hardcoat layer (Figure 1(d), element 2). *Matsufuji* further discloses that its objective is to provide a film having excellent antistatic properties, antireflection properties, which can be bonded to a face panel (paragraph 0021, lines 1-7). Moreover, *Matsufuji* discloses that its hardcoat layer is preferably prepared by using an organic solvent such as alcohols, methanol, ethanol, isopropanol, ethers, methyl ethyl ketone, methyl isobutyl ketone, ethyl acetate, butyl acetate, halogenated hydrocarbons, toluene, xylene, aromatic hydrocarbons, and combinations thereof (paragraph 0167).

18. *Kobayashi* discloses a protective film of a polarizing plate is disclosed in which the protective film comprising a support, an antistatic layer, and a hardened layer in that order (Abstract). *Kobayashi* further discloses that the antistatic layer formed over a transparent film contains a solvent such as cyclohexanone, methanol, ethanol, methyl ethyl ketone, ethyl acetate, ethylene glycol, etc (column 35, lines 29-40).

19. It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the layers in a film laminate, of *Shigematsu* in view of *Neuman*, *Meredith*, or *Klocek*, by use of organic solvents that have "penetrating" properties, of *Matsufuji* or *Kobayashi*. One of ordinary skill in the art would have been

motivated in trying such solvents due to prior art disclosing its uses in conjunction with a desire for improving antireflective properties in their films. The fact that prior art discloses the use of solvents in both the makeup of the hardcoat and antistatic layers would further motivate one of ordinary skill to try its use in either one of the layers. Finally, the examiner submits that the combination of *Shigematsu* in view of *Neuman*, *Meredith*, or *Klocek* and further in view of *Matsufuji* or *Kobayashi* having solvents of the same type as that disclosed by applicants as examples of "penetrating solvents" proves that the composition of its antistatic and hardcoat layers will inherently have the ability to penetrate into the layers below it.

20. Regarding claim 6, *Shigematsu* in view of *Neuman*, *Meredith*, and *Klocek* and further in view of *Matsufuji* and *Kobayashi* suggest that the high refractive index layer of *Shigematsu* (Drawing 1, element 12) has the same basic composition as that of the medium refractive index layer below it (Drawing 1, element 11) (paragraph 0030). Also, *Matsufuji* discloses that its antireflective film (Figure 1(d)) contains a hardcoat layer (Figure 1(d), element 2) directly adjacent to the transparent support (Figure 1(d), element 1) as opposed to the arrangement of *Shigematsu*. However, even *Shigematsu* allows its high refractive index layer (Drawing 1, element 12) to contain antistatic agents (paragraph 0029, lines 1-2). As such, one of ordinary skill in the art would be reasonably able to try either of the two arrangements with a known, predictable result. In this vein, the examiner submits the court ruled in *Ex parte Rubin*, 128 USPQ 440 (Bd. App. 1959) wherein a prior art reference disclosing a process of making a laminated sheet wherein a base sheet is first coated with a metallic film and thereafter

impregnated with a thermosetting material was held to render prima facie obvious claims directed to a process of making a laminated sheet by reversing the order of the prior art process steps.). See also *In re Burhans*, 154 F.2d 690, 69 USPQ 330 (CCPA 1946) (selection of any order of performing process steps is prima facie obvious in the absence of new or unexpected results); *In re Gibson*, 39 F.2d 975, 5 USPQ 230 (CCPA 1930) (Selection of any order of mixing ingredients is prima facie obvious.).

Conclusion

21. Any inquiry concerning this communication or earlier communications from the examiner should be directed to TAHSEEN KHAN whose telephone number is (571)270-1140. The examiner can normally be reached on Monday to Thursday from 7:30am-5:30pm EST.
22. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David R. Sample can be reached on (571)272-1376. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.
23. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a

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August 13, 2009